TAXONOMIC STUDIES OF JAPANESE CHAROPHYTES BASED ON THE OOSPORE WALL ORNAMENTATION AND MOLECULAR PHYLOGENY

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Recent SEM studies of oospore morphology have shown its taxonomic significance for delineating charalean species, and other studies have carried out molecular phylogenetic analyses to resolve certain phylogenetic relationships of the Charales. However, Japanese charalean taxa have not been examined by these modern methods, except for *N. gracilens*. In this study, sixteen taxa belonging to *Chara* and *Nitella*, collected from the central and northern areas of Japan, were investigated with respect to SEM oospore morphology and *rbc*L gene phylogeny. Oospore morphology of three Japanese endemic species of *Nitella* (*N. gracilens*, *N. spiciformis* and *N. axilliformis*) was distinctly different from that of the species (*N. furcata*, *N. gracilis* and *N. translucens*, respectively) to which Wood [1965. Monograph of the Characeae (R.D. Wood & K. Imahori, Revision of the Characeae, vol. 1), J. Cramer, Weinheim, 904 pp.] assigned them as infraspecific taxa. Furthermore, the *rbc*L sequence data clearly demonstrated that *N. gracilens* was separated from *N. furcata*, and *N. axilliformis* from *N. translucens*. This is the first integration of SEM oospore morphology and molecular phylogenetics in charalean taxonomy, demonstrating the effectiveness of both characters in addressing problems at lower taxonomic levels. [Supported by Showa Shell Sekiyu Foundation for Promotion of Environmental Research]

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